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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/694,694	10/27/2003	Nileshkumar T. Dave	C-2834	3922

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M. P. Williams
210 Main Street
Manchester, CT 06040

EXAMINER

PARSONS, THOMAS H

ART UNIT	PAPER NUMBER
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1745

DATE MAILED: 12/16/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/694,694

Applicant(s)

DAVE ET AL.

Examiner

Thomas H. Parsons

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 27 October 2003.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-8 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-8 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 27 October 2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Specification

1. The disclosure is objected to because of the following informalities:

page 5, line 10, suggest inserting a parenthesis before "14".

Appropriate correction is required.

Claim Rejections - 35 USC § 112

2. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

3. Claims 1-8 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim 1, line 3, it is unclear as to what is meant by "planforms".

Claim Rejections - 35 USC § 103

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

5. Claims 1, 6, and 7 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kumata et al. (4,508,793).

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Claim 1: Kumata et al. in Figures 1-6 disclose a fuel cell assembly (11) comprising:
a plurality of PEM fuel cells (12) connected electrically in series, each of the fuel cells having substantially the same planforms (i.e. the same dimensions in width and height);

a plurality of cooler plates (15) interposed between groups of fuel cells (12)(col. 3: 65-67);

each of the cooler plates (15) having an internal coolant flow channel in fluid communication with an inlet opening and an outlet opening (col. 4:49-52) disposed in one or more projections (15'')(col. 4: 21-25) of the cooler plate, the projections extending outwardly from the planforms of the fuel cells (see also abstract, col. 2: 17-38, and col. 3: 50-col. 5: 44);
and

a plurality of seal assemblies, each disposed between corresponding projections of proximate cooler plates and having a fluid passageway (38) in fluid communication with respective ones of the inlet and outlet openings to form inlet and outlet manifolds to permit coolant flow between cooler plates.

More particularly, Kumata et al. in Figures 8, 9 and 15 (col. 4: 41-48) disclose that the interior of the process air manifolds 17a, 17b are partitioned into several air chambers 30 by the projecting portions 15' of the cooling plates 15, and each of the air chamber 30 communicates with the inlet and outlet manifolds 20a, 20b through the air holes 19, but is isolated from the space of the cooling air manifolds 18a, 18b by a suitable sealing means 34.

Kumata et al. in FIGS. 10 and 11 (col. 5: 65-col. 6: 12) disclose a modified process air manifold 17a for the fuel cell system according to the present invention. The process air

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manifold 17a comprises a frame 35, a front plate 36 and a sealing plate 37. The frame 35 and front plate 36 are made of a metal, and the front plate 36 is provided with rectangular holes 17' having dimensions greater than that of the projecting portion 15' of the cooling plate 15. The sealing plate 37 is made of a heat-resisting, insulating elastic material such as fluorine-contained rubber and integrally formed on the front plate 36 to form a front wall of the manifold 17a. The sealing plate 37 has flanged holes 38 having dimensions slightly smaller than that of the projecting portion 15' of the cooling plate 15, and the projecting portions 15' and the flanged holes 38 are fitted by force.

The integrated sealing means-manifold combination of Kumata et al. would obviously provide the claimed seal assemblies.

Claim 6: Kumata et al. disclose in Figure 3 that each of the cooler plates includes a flange for attachment of the cooler plate (see top edge of 18a) to the fuel cell assembly 12).

Claim 7: Kumata et al. in Figure 15 disclose that the projections (15') extend sufficiently outward from the planforms to provide an isolation gap between the manifold (18) and the planforms.

6. Claim 2 is rejected under 35 U.S.C. 103(a) as being unpatentable over Kumata et al. as applied to claim 1 above, and further in view of Donatello et al. (5,433,166).

Claim 2: Kumata et al. are as applied, argued, and disclosed above, and incorporated herein.

Kumata et al. do not disclose a closed cell rubber gasket.

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Donatello et al. disclose in Figure 2 a seal (29) that include a closed cell rubber gasket (col. 4: 28-33).

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to have modified the seal assemblies of Kumata et al. to include a closed cell rubber gasket because Donatello et al. teach a closed cell rubber gasket that would have provided a long lasting consistent weather tight seal thereby improving the overall performance of the manifolds and the fuel cell assembly.

7. Claim 3 is rejected under 35 U.S.C. 103(a) as being unpatentable over Kumata et al. as applied to claim 1 above, and further in view of Rudolph (6,162,298).

Claim 3: Kumata et al. are as applied, argued, and disclosed above, and incorporated herein.

Kumata et al. do not disclose a solid bushing bonded to a gasket.

Rudolph discloses a seal that includes a solid bushing bonded to a gasket (Figure 4 and col. 6: 15-31).

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to have modified the seal assemblies of Kumata et al. to include a solid bushing bonded to a gasket because Rudolph teaches a solid bushing bonded to a gasket that would have prevented gas leakage around a gas inlet thereby improving the overall performance of the manifold and fuel cell assembly.

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8. Claim 4 is rejected under 35 U.S.C. 103(a) as being unpatentable over Kumata et al. and further in view of Rudolph as applied to claims 1 and 3 above, and further in view of Carkhuff et al. (3,436,522).

Claim 4: Kumata et al. and Rudolph are as applied, argued, and disclosed above, and incorporated herein.

The Kumata et al. combination does not disclose a glass reinforced plastic bushing.

Carkhuff et al. disclose a glass reinforced plastic bushing (col. 2: 51-54 and Figure 3.

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to have modified the seal assemblies of Kumata et al. combination to include a glass reinforced plastic bushing because Carkhuff et al. disclose a that would have glass reinforced plastic bushing that would have provided fore a streamlined flow of gas through a chamber to a workpiece thereby improving the overall efficiency and performance of gas flow in the manifolds.

9. Claim 5 is rejected under 35 U.S.C. 103(a) as being unpatentable over Kumata et al. and further in view of Rudolph as applied to claims 1 and 3 above, and further in view of Waller et al. (5,229,575).

Claim 5: Kumata et al. and Rudolph are as applied, argued, and disclosed above, and incorporated herein.

The Kumata et al. combination does not disclose a creep resistant plastic bushing.

Waller et al. in Figure 4 disclose a creep resistant plastic (i.e. polyimide which is instantly disclosed a creep resistant plastic) bushing (42)(col. 6: 16-19).

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Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to have modified the seal assemblies of Kumata et al. combination to include a creep resistant plastic bushing because Waller et al. teach a creep resistant plastic bushing that would have provided a bushing having desirable thermal expansion properties thereby improving the overall strength and performance of the seal.

10. Claim 8 is rejected under 35 U.S.C. 103(a) as being unpatentable over Kumata et al. as applied to claim 1 above, and further in view of Yang et al. (6,672,995).

Claim 8: Kumata et al. are as applied, argued, and disclosed above, and incorporated herein,

The Kumata et al. combination does not disclose an air turn manifold.

Yang et al. in Figure 3 disclose an air turn manifold (col. 3: 42-50).

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to have modified the manifold of Kumata et al. by incorporating the air turn manifold of Yang et al because Yang et al. teach an air turn manifold that would have provided lower temperatures, a more even temperature profile, a higher coolant exit temperature, and permitted operating with higher air utilization and lower coolant flow thereby improving the overall efficiency, performance and operating cost of the fuel cell assembly.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Thomas H. Parsons whose telephone number is (571) 272-1290.

The examiner can normally be reached on M-F (7:00-4:30) First Friday Off.

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If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Pat Ryan can be reached on (571) 272-1292. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).


PATRICK JOSEPH RYAN
SUPERVISORY PATENT EXAMINER

Thomas H Parsons
Examiner
Art Unit 1745
